IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.: 10/040,036

Filing Date: January 3, 2002

Applicant: Dutta et al.

Entitled: POTENTIOMETRIC NO_X SENSORS BASED ON YTTRIA-STABILIZED ZIRCONIA WITH ZEOLITE MODIFIED ELECTRODE

Commissioner for Patents
Washington, D.C. 20231

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8 (A)

Date of Deposit: May 21, 2002

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail in an envelope addressed to Commissioner for Patents, Washington, D.C. 20231.

Sheri L. Burke

Sheri L. Burke

Sir:

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §§ 1.97-1.98

As authorized and encouraged under 37 CFR §§ 1.97-1.98 and the provisions of MPEP §§ 609 and 707.05 (b), Applicant(s) submits herewith certain patent references, publications and/or other information which the Patent and Trademark Office may wish to consider in examining the above-identified patent application. The references and information are listed below and on attached form PTO-1449.

U.S. PATENTS

U.S. PATENT NUMBER	INVENTOR(S)
NONE	

FOREIGN PATENT DOCUMENTS

COUNTRY	PATENT NO.	INVENTOR(S)
None		

OTHER DOCUMENTS

1. Miura, N. et al., *High-temperature potentionmetric/amperometric NOx sensors combining stabilized zirconia with mixed-metal oxide electrode*, Sensors and Actuators B, 52 (1998) 169-178.

2. Miura, N. et al., *Stabilized zirconia-based sensor using oxide electrode for detection of NOx in high-temperature combustion-exhausts*, Solid State Ionics, 86-88 (1996) 1069-1073.

3. Miura, N. et al., *Mixed Potential Type NOx Sensor Based on Stabilized Zirconia and Oxide Electrode*, J. Electrochem. Soc. 143 (2) (1996) L33 – L35.

4. Lu, G. et al., *Stabilized zirconia-based sensors using WO3 electrode for detection of NO or NO2,* Sensors and Actuators B, 65 (2000) 125 – 127.

5. Kurosawa, H. et al., *Stabilized zirconia-based NOx sensor operative at high temperature,* Solid State Ionics, 79 (1995) 338-343.

6. Brosha, E.L. et al., *CO/HC sensors based on thin films of LaCoO3 and La0.8Sr0.2CoO3-δ metal oxides,* Sensors and Actuators B, 69 (2000) 171-182.

7. Mukundan, R. et al., *Ceria-Electrolyte-Based Mixed Potential Sensors for the Detection of Hydrocarbons and Carbon Monoxide,* Electrochemical and Solid State Letters, 2(8) (1999) 412-414.

8. Mukundan, R. et al., *A Mixed-Potential Sensor Based on a Ce0.8Gd0.2O1.9 Electrolyte and Platinum and Gold Electrodes,* J. Electrochem. Soc. 147 (4) (2000) 1583-1588.

9. Hibino, T. et al., *Non-Nernstian Behavior at Modified Au Electrodes for Hydrocarbon Gas Sensing*, J. Electrochem. Soc. 146 (9) (1999) 3361-3366.

10. Walcarius, A., *Zeolite-Modified Electrodes in Electroanalytical Chemistry*, Analytical Chimica Acta, 384, pp. 1 – 16 (1999).

11. Walcarius, A., *Factors Affecting the Analytical Applications of Zeolite Modified Electrodes: Indirect Detection of Nonelectroactive Cations*, Analytical Chimica Acta, 388, pp. 79-91 (1999).

12. Fukui, K. et al., *CO Gas Sensor Based on Au-La_2O_3 Added SnO_2 Ceramics with Siliceous Zeolite Coat*, Sensors and Actuators B, 45, pp. 101 – 106 (1997).

13. Tsuchiya, H. et al., *Zeolite Sensor for Nitrogen Monoxide Detection at High Temperature*, Mat. Res. Soc. Symp. Proc., 454, pp. 297-302 (1997).

14. Enea, O., *Morphological and Electrocatalytic Properties of Gold Deposits on NaY Zeolite*, Electrochim. Acta. 34, pp. 1647 (1989).

15. Osada, M. et al., *Synthesis of a Faujasite Thin Layer and its Application for SO_2 Sensing at Elevated Temperatures*, Microporous and Mesoporous Materials, 23, pp. 287 – 294 (1998).

16. Liu, B., et al., *A Reagentless Amperometric Biosensor Based on the Coimmobilization of Horseradish Peroidase and Methylene Green in a Modified Zeolite Matrix*, Analytica Chimica Acta, 386, pp. 31- 39 (1999).

17. Kunzellman, U. et al., *Biosensor Properties of Glucose Oxidase Immobilized Within SiO_2 Gels*, Sensors and Actuators B, 39, pp. 222 – 228 (1997).

18. Simon, U. et al., *The effect of NH_3 on the Ionic Conductivity of Dehydrated Zeolites Nabeta and Hbeta*, Microporous and Mesoporous Materials, 21, pp. 111-116 (1998).

19. Wolfbeis, O.S., *Novel Oxygen Sensor Material Based on a Ruthenium Bipyridyl Complex Encapsulated in ZeoliteY: Dramatic Differences in the Efficiency of Luminescence Quenching by Oxygen on Going From Surface-Absorbed to Zeolite-Encapsulated Flourophores*, Sensors and Actuators B, 29, pp. 240 – 245 (1995).

20. Berger, R. et al., *Micromechanic: A Toolbox for Femtoscale Science: Towards a Laboratory on a Tip*, Microelectronic Engineering, 35, pp. 373-379 (1997).

21. Scandella, L. et al., *Combination of Single Crystal Zeolites and Microfabrication: Two Applications Toward Zeolite Nanodevices*, Microporous and Mesoporous Materials, 21, pp. 403 – 409 (1998).

22. Zhuiykov, S. et al., *Stabilized Zirconia-Based NOx Sensor Using ZnFe2O4 Sensing Electrode*, Electrochemical and Solid-State Letters, 4 (9), H19-H21 (2001).

23. Ruhland, B. et al., *Gas-kinetic Interactions of Nitrous Oxides with SnO2 Surfaces*, Sensors and Actuators B 50, 85-94 (1998).

24. Imanaka, N. et al., *Nitrogen Oxides Sensor Based on Silicon Nitride Refractory Ceramics*, Electrochemical and Solid-State Letters, 2 (2), 100-101 (1999).

25. Zhuiykov, S. et al., *Potentiometric NOx Sensor Based on Stabilized Zirconia and $NiCr_2O_4$ Sensing Electrode Operating High Temperatures*, Electrochemistry Communications 3, 97-101 (2001).

26. Miura, N. et al., *Selective Detection of NO by Using an Amperometric Sensor Based on Stabilized Zirconia and Oxide Electrode*, Solid State Ionics 117, 283-290 (1999).

27. Sberveglieri, G., et al., *Response to Nitric Oxide of Thin and Thick SnO_2 Films Containing Trivalent Additives*, Sensors and Actuators B1, 79-82 (1990).

28. Baratto, C. et al., *Gold-Catalysed Porous Silicon for NOx Sensing*, Sensors and Actuators B 68, 74-80 (2000).

29. Fruhberger, B. et al., *Detection and Quantification of Nitric Oxide in Human Breath Using a Semiconducting Oxide Based Chemiresistive Microsensor*, Sensors and Actuators B 76, 226-234 (2001).

30. Ono, M. et al., *Amperometric Based on NASICON and NO Oxidation Catalysts for Detection of Total NOx in Atmospheric Environment*, Solid State Ionics 136-137, 583-588 (2000).

31. Fleischer, M. et al., *Selective Gas Detection with High-Temperature Operated Metal Oxides Using Catalytic Filters*, Sensors and Actuators B 69, 205-210 (2000).

32. Kitsukawa, S. et al., *The Interference Elimination for Gas Sensor by Catalyst Filters*, Sensors and Actuators B 65, 120-121 (2000).

same as No. 12 33. Fukui, K. et al., *CO Gas Sensor Based on Au-La_2O_3-Added SnO_2 Ceramics with Siliceous Zeolite Coat*, Sensors and Actuators B 45, 101-106, (1997).

34. Hugon, O. et al., *Gas Separation with a Zeolite Filter, Application to the Selectivity Enhancement of Chemical Sensors*, Sensors and Actuators B 67, 235-243 (2000).

35. Kaneyasu, K. et al., *A Carbon Dioxide Gas Sensor Based on Solid Electrolyte for Air Quality Control*, Sensors and Actuators B66, 56-58 (2000).

36. Szabo, N. et al., *Microporous Zeolite Modified yttria Stabilized Zirconia (YSZ) Sensors for Nitric Oxide (NO) Determination in Harsh Environments*, Sensors and Actuators B 4142, 1-8 (2001).

7/03

A copy of each document is included for the express purpose of providing the Patent and Trademark Office with ample opportunity to evaluate the same and arrive at an independent assessment of the materiality of each, if any, to the examination of the above-identified application.

In reviewing the enclosed copies of the above documents, the Examiner is instructed to ignore any underscoring or highlighting which may have been done because such markings may or may not have any relationship to the subject matter of the above-identified application. The copies being submitted with this Information Disclosure Statement are the best copies available at this time.

The identification of any document herein is not intended to be, and should not be understood as being, an admission that each such document, in fact, constitutes "prior art" within the meaning of applicable law.

Applicant(s) respectfully requests that the documents cited herein be made of record in the normal manner and that such documents appear on the printed patent as being considered and made of record.

Respectfully submitted,

Date: May 20th, 2002

By: _____

Roger A. Gilcrest
Registration No.: 31,954
Standley & Gilcrest LLP
495 Metro Place South, Suite 210
Dublin, Ohio 43017-5315
Telephone: (614) 792-5555
Facsimile: (614) 792-5536